[redacted]

FUTURE ELECTRIC ENERGY CONSUMPTION:
A CRITIQUE OF MONTANA POWER COMPANY'S PROJECTION

[redacted]

Prepared as Part of a Study for

The Montana Department of Public Service Regulation

by

Thomas M. Power, Ph.D.

Consulting Economist

February 20, 1975

FUTURE ELECTRIC ENERGY CONSUMPTION:

A CRITIQUE OF MONTANA POWER COMPANY'S PROJECTION

[redacted]

Prepared as Part of a Study for

The Montana Department of Public Service Regulation

by

Thomas M. Power, Ph.D.

Consulting Economist

February 20, 1975

1. INTRODUCTION AND CONCLUSIONS

Montana Power Company (MPC) in its reply to the Draft Environmental Impact Statement (DEIS) on Colstrip 3 & 4 prepared by Energy Planning Division of the Department of Natural Resources and Conservation, criticized the projections of energy consumption within MPS's service district contained in the DEIS. In that criticism MPC presented a new set of projections based on what MPC considers to be a superior method of treating past trends.

Since the methods used in the DEIS to make its energy projections were similar to those used in an earlier study done by this consultant* for the Montana Department of Public Service Regulation, this paper attempts to explain and analyze MPC's criticisms. It will be argued that in the revised projections MPC makes the same questionable assumptions criticized in my earlier study and provides no new data to change the conclusion of that earlier study that MPC is overestimating future consumption. Neither this study nor my previous study is detailed enough nor sufficiently quantitatively oriented to indicate by how much MPC is overestimating future consumption. It should be kept in mind in reading the criticisms below that MPC has a legal obligation to provide electric energy at "reasonable" rates to all in their service area who request it. This legal obligation combined with perverse profit incentives to over-invest which are built into the regulatory process,** as well as many decades of actual uninterrupted, rapid, exponential growth in electric energy consumption explain MPC's desire to be prepared for the highest possible level of electric energy demand. The appropriateness of this sort of planning posture has to be judged by the state regulatory agencies responsible for overseeing Montana Power Company's activities.

2. MPC'S NEW PROJECTIONS

The following explanation is taken from a paper submitted by MPC to the

---

* "Colstrip 3 & 4: Need and Impact on Rates", prepared for Montana Department of Public Service Regulation, September 13, 1974.

** See pages 22-25 of my earlier study, Op. Cit.

Energy Planning Division entitled "Back-up Data", by R. Stuart, dated January 8, 1975.

MPC takes "the actual total energy load that was experienced by MPC from 1952-1971." From this it subtracts "the actual block loads,.. leaving the Actual Base Load." The "block loads include: Anaconda Co., interruptible loads, Indian irrigation load, Milwaukee RR, BA & P RR, Glasgow AB and REA's no longer served."

The point of subtracting out these block loads is that they are highly variable and their fluctuations obscure what is happening to the rest of the industrial load as well as to the commercial and residential load. By subtracting out these discrete, large blocks, one estimates the "actual base load." It is this, MPC feels, that should be used to make future projections (if one is going to base future projections on past consumption patterns). One can project the past growth of this "base load" into the future and then add back to it the estimated future block loads based on "careful analysis of each one" and an "agreement... with (the) parties involved" to get the projected future consumption.

This disaggregation which removes the fluctuating demand of Anaconda Company and allows incremental block additions for major industrial expansions makes sense. It is probably the only way these large blocks can be treated and is the way new industrial block demand was treated in my earlier study as well as in the DEIS.

Table 1 contains the basic data used by MPC and Table 2 contains the projections based on this data as well as the projections provided in the 1974 "Long Range Plan." Note in Table 1 how large the blocks are; in the 1950's they represented one half of all energy MPC sold. Note also that the total block load, although it has fluctuated, has not grown since 1952.

In Table 2, note that the new projections are 52 MW higher in 1985 than the earlier projections and would have been even higher if the data from the 1968-73 period had been used for projection purposes. This alternate approach seems to substantiate MPC's earlier projections.

TABLE 1

TOTAL, BLOCK, AND BASE LOADS, 1952-1971

YEAR	ACTUAL TOTAL LOAD (MW)	BLOCKS SUBTRACTED OUT (MW)	(1-2) ACTUAL BASE LOAD (MW)	CHANGE IN BASELOAD FROM PREVIOUS YEAR (MW)
1952	338	186	152	--
1953	331	185	146	-6
1954	294	145	149	+3
1955	353	184	169	+20
1956	382	197	185	+16
1957	367	188	179	-6
1958	350	164	186	+7
1959	309	112	197	+9
1960	359	149	210	+13
1961	376	146	230	+20
1962	392	157	235	+5
1963	400	150	250	+15
1964	437	169	268	+18
1965	467	184	283	+15
1966	508	207	301	+18
1967	467	148	319	+18
1968	496	160	336	+17
1969	543	195	348	+12
1970	564	198	366	+18
1971	560	162	398	+32
1972	589	175	414	+16
1973	578	164	414	+0

Source: Documents submitted to Energy Planning by Don Gregg and Rob Stewart, MPC, January 14, 1975

TABLE 2

LEAST SQUARE PROJECTIONS
BASED ON
HISTORICAL BASE LOAD
(MEGAWATTS)

YEAR	(1) 1952-71 LEAST SQUARES FIT TO BASE LOAD	(2) 1968-73 LEAST SQUARES FIT TO BASE LOAD	(3) BLOCK LOADS	(1) +(3) MPC TOTAL PROJECTED ENERGY LOAD	PROJECTIONS IN 1974 MPC LONG RANGE PLAN
1972	410	420	175	585 (584 Actual)	
1973	432	446	164	596 (578 Actual)	
1974	456	473	159	615	588
1975	481	502	199	680	645
1976	508	533	222	730	723
1977	536	565	232	768	754
1978	565	600	256	821	786
1979	596	637	263	859	820
1980	629	676	269	898	857
1981	664	718	273	937	895
1982	700	762	280	980	935
1983	739	808	286	1025	978
1984	780	858	293	1073	1023
1985	822	911	299	1121	1069

Source: Documents submitted to Energy Planning by Don Gregg and Rob Stewart, MPC, January 14, 1975 and 1974 MPC "Long Range Plan"

3. CRITICISM OF THE METHOD AND NEW PROJECTIONS

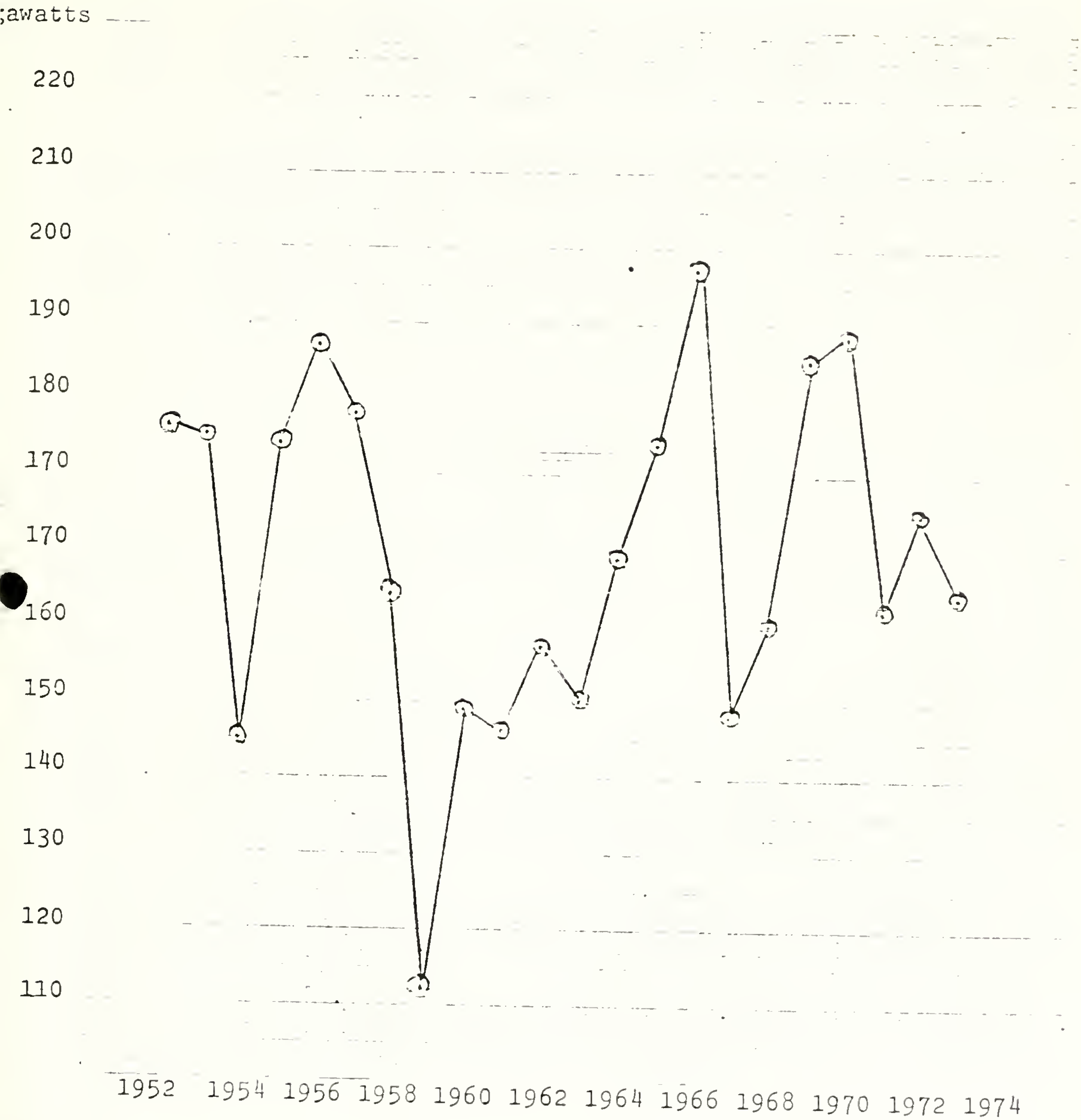
MPC's new method of disaggregation is valuable and interesting although, as will be shown below, it does not produce information which convincingly supports their projections or answers previous criticisms of those projections. What has to be kept in mind throughout the discussion of the disaggregation of the data on total consumption is that contrary to the claim made by MPC in the 1974 "Long Range Plan" that "The Montana Power Company's electric energy demand is expected to continue to increase at least at its present 5-6 percent annual rate of increase " (pg. 9; emphasis added), MPC's sales to ultimate consumers was lower in 1973 than it had been in 1966 and has been falling from its peak since 1970. The disaggregation of the data points to the causes of this performance but does not explain it away.

a) One has to be careful with this "subtracting out", "adding in" method. It has a quite legitimate logic to it. However, one could proceed to subtract out all of the slow growing consumers of electric energy, leaving as a "base" the faster growing users. A projection based on this, of course, would indicate rapidly growing electric energy consumption. This is offered more as a warning than as an accusation. The point is that one can cover one's past errors in projection by this sort of method.

Figure 1 indicates the actual level of the block loads over the last twenty years. Notice the random, erratic variations. World copper prices and strikes against Anaconda Company explain much of the variation. Figure 2 indicates the projected block loads, 1974-1985. Now one has to be startled by the difference between 1952-1973 (Figure 1) and 1974-1985 (Figure 2). The future is projected to diverge dramatically from the past. The difference is that all past block loads as projected forward at maximum level and new block loads are added which are assumed not to vary. There will be no closure of the equivalent of the Great Falls zinc operation (1972, a peak load of 100 MW) or a decline in the level of copper operations or a switch away from electric energy such as the railroad reversion to diesel fuel.

FIGURE 1

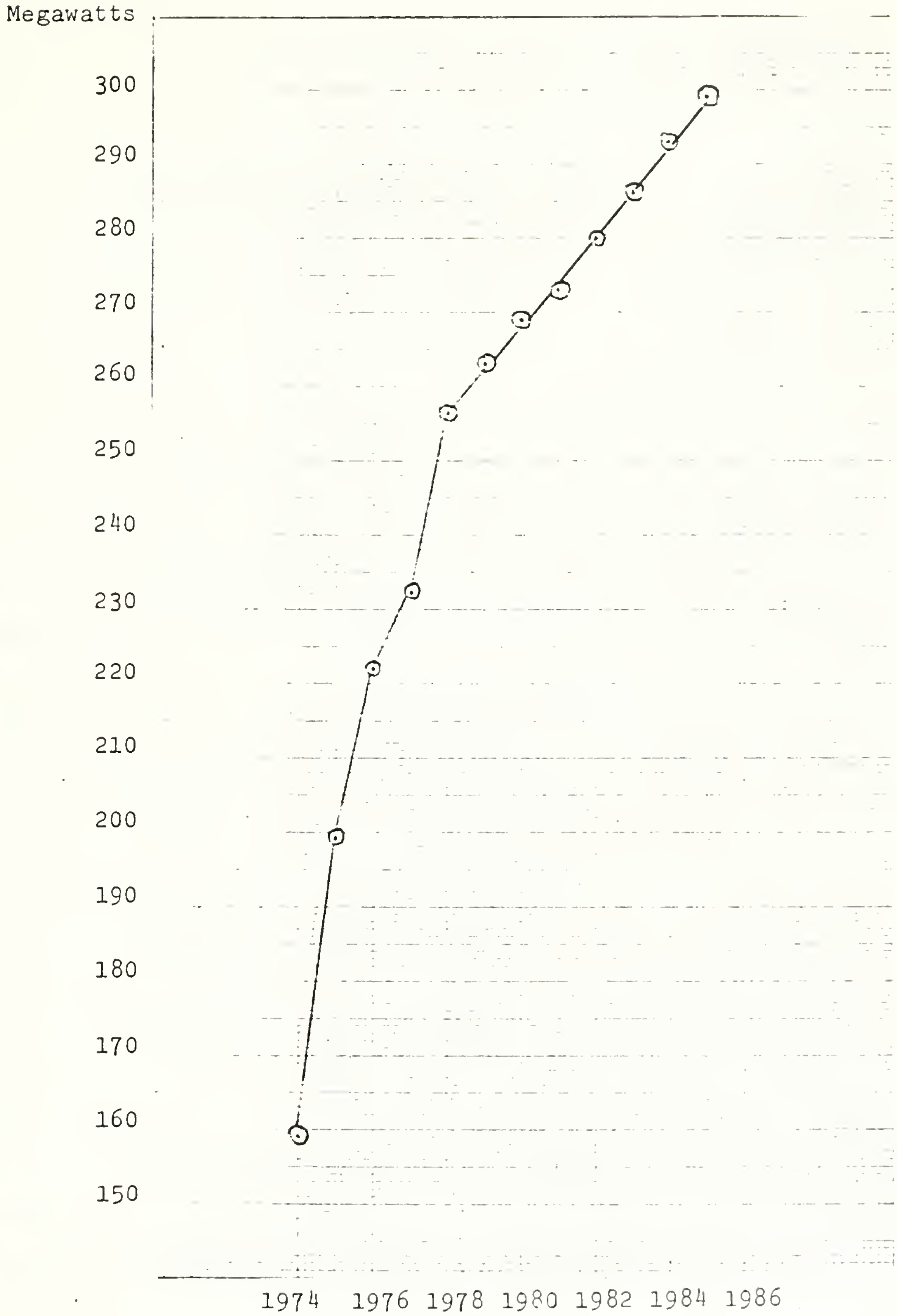
VARIATIONS IN BLOCK LOADS, 1952-1971



Source: MPC data supplied to Energy Planning Division by Don Gregg and Rob Stewart, dated January 13, 1975

FIGURE 2

PROJECTED BLOCK LOADS, 1974-1985
(Same Scale as Figure 1)



Source: Table 2

Such reversals in the past, it is assumed, will not be repeated. The closure of the underground mines in Butte (a loss of 500-600 jobs, what was the electrical energy consumption?) and the increased international competition from South American and African copper sources casts doubt on just one aspect of those projected block loads. What are the characteristics of these new block loads that explains their new stability and regular growth?

The preliminary 1974 data* on block loads indicates the dangers in smooth projections of such block loads. In 1974 Anaconda Company was forecast to use 114.2 MW; it actually used 108.4. Milwaukee RR was forecast to use 6.8 MW; it actually used 2.6. The interruptible users were forecast to use 17 MW; they actually used 12.8 MW. That is an 8.5% error in total block load. A small difference maybe, but enough to change considerably the annual growth rate.

Finally, one part of the block load "subtracted out" was the "REA's no longer served." Why subtract out only that consumption that has ended while leaving in the base load that which continues?

It is certain that these last two considerations are quantitatively small. They are mentioned only to indicate one of the dangers of this method.

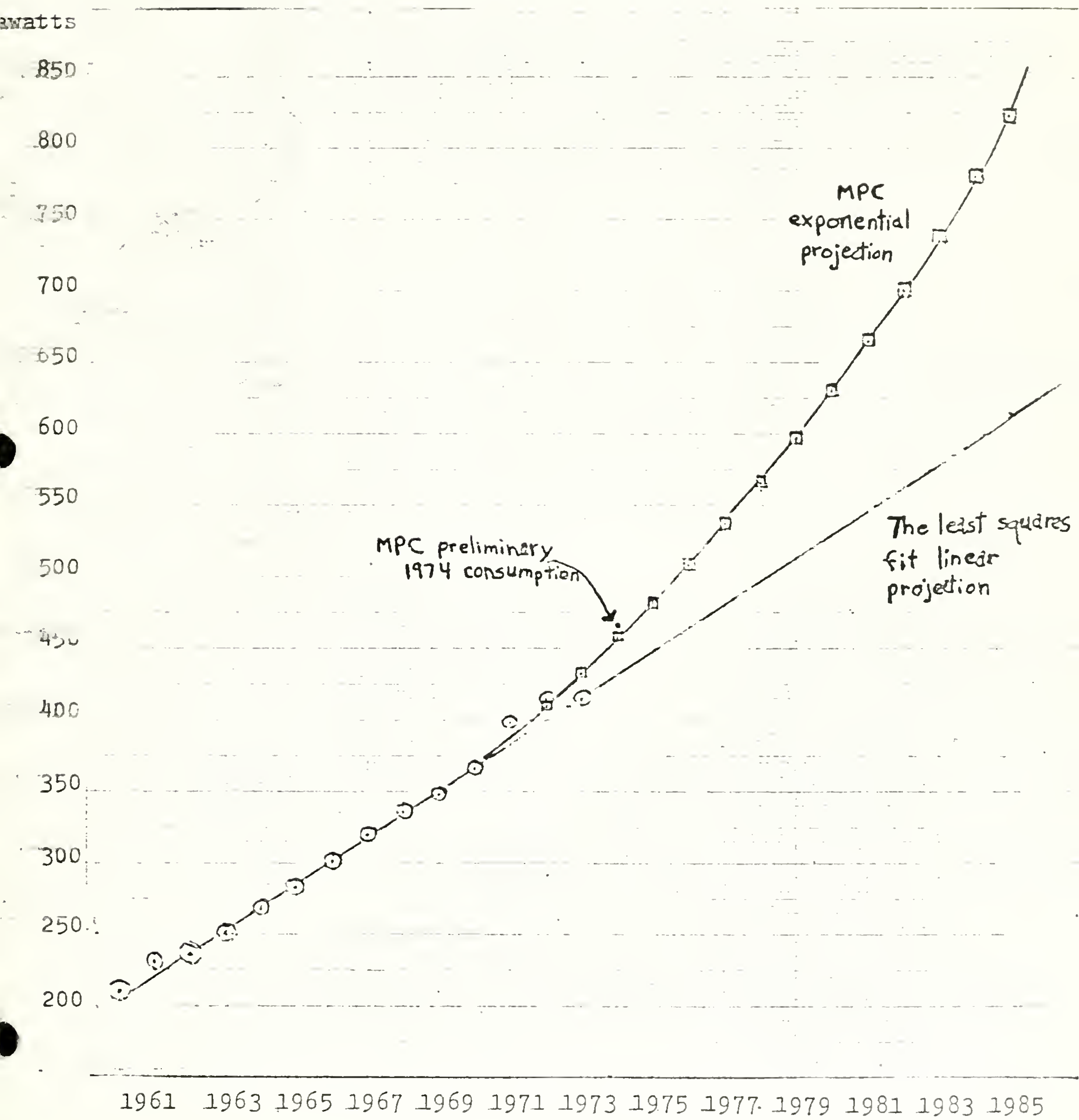
b) MPC, after calculating the "base load" (column 4, Table 1) for the years 1952-1971 fitted a least squares regression line to the data. In fitting this line they assumed that the character of the changes in "base" consumption from year to year was one of exponential growth, i.e., they assumed a constant percentage increase each year. This produces a constantly growing annual increment to the previous years consumption. If one looks at the years since 1960 (the years 1952-59 show no regular patterns), what one observes is an approximately constant incremental (linear) growth of 16-17 MW a year, not the constantly growing increment which

---

* Data provided by Don Gregg (MPC) to Energy Planning Division.

FIGURE 3

ACTUAL BASE LOAD, 1960-1973
and
PROJECTIONS TO 1985



Source: Table 1

MPC's projections assume. Figure 3 indicates the difference between these two types of projections. The exponential assumption leads to a projected consumption in 1985 that is 206 MW greater than the linear projection. That 206 MW is almost 50 percent of MPC's share of Colstrip 3 & 4.

On statistical grounds it is impossible to choose between a linear and exponential fit. If one uses the R^2 statistic to judge the "goodness of fit" to the data of a linear or exponential assumption, the R^2 is almost identical ($R^2 = .992$) for both assumptions. A linear line fits as well as an exponential curve.

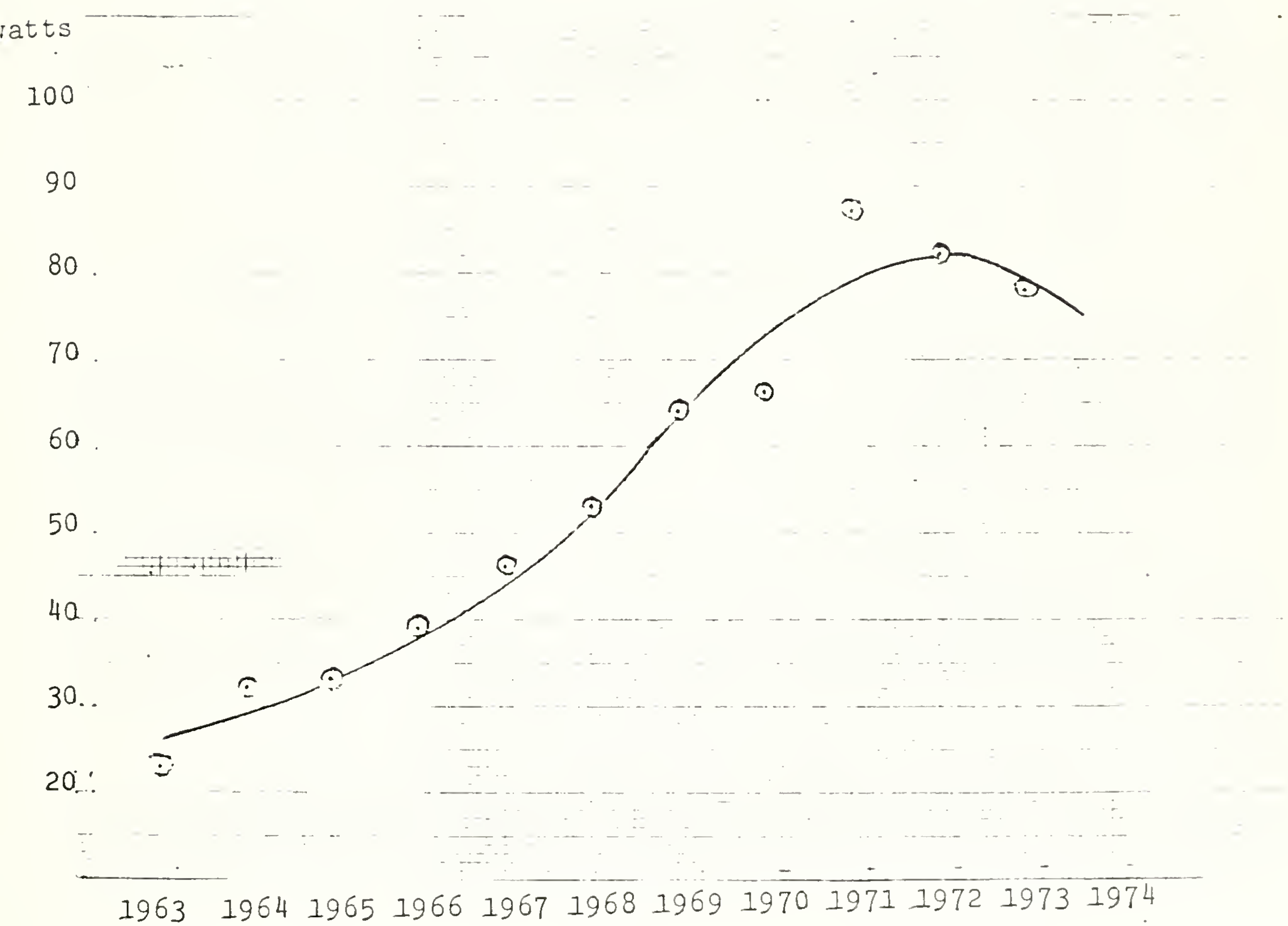
It should also be noted that since 1971 the rate of growth of the "base load" has slowed from its 1961-71 average of around 5 percent to 3.9 percent in 1972 and zero percent in 1973.

It should be noted that MPC provisional estimate of base load during 1974 is 464 MW. If this should prove correct, this data point falls closer to their exponential projection than to my linear one based on 1961-1973 data. However, if this preliminary estimate is included as a data point in the least squares regression it does not change the conclusion that a linear line fits the data as well as an exponential curve does (R^2 are still almost identical). What one should conclude from this single provisional data point is not clear. It will depend upon what problem connected with electric generation one is most concerned about and how quickly one is willing to come to a particular conclusion.

c) One advantage of MPC's approach is that it allows one to look at what is happening to the industrial demand for electric energy separate and apart from the influence of Anaconda Company and other large block users. Figure 4 indicates how the residual industrial load has behaved 1963-73 when one subtracts out the block

FIGURE 4

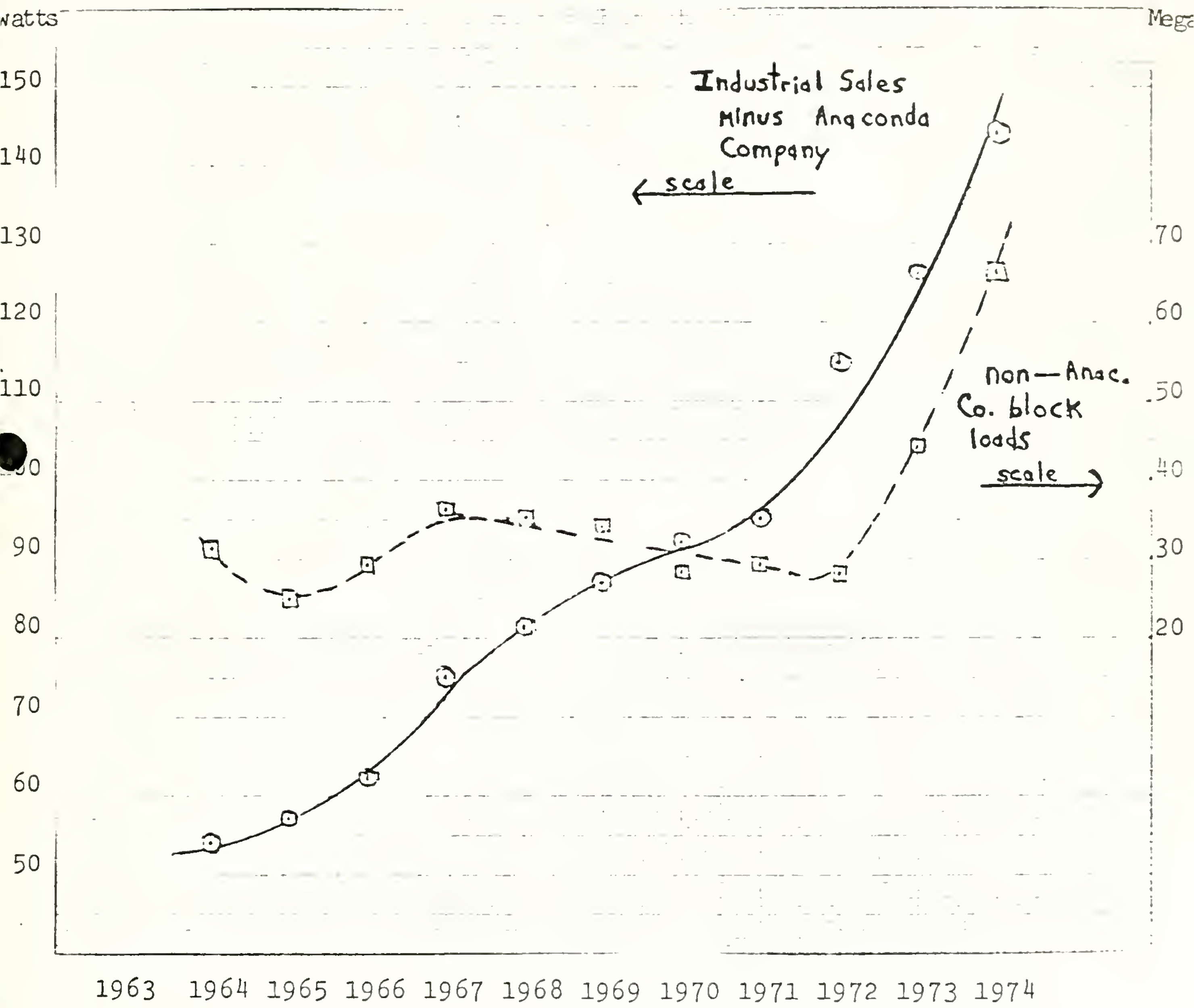
RESIDUAL INDUSTRIAL CONSUMPTION, 1963-1973
(Total Industrial Consumption Minus Block Loads)



Source: Table 1, MPC reports to the Federal Power Commission, 1963-1973

FIGURE 5

INDUSTRIAL AND BLOCK SALES MINUS ANACONDA COMPANY



Source: MPC Data supplied to Energy Planning Division

loads.* Notice that little industrial load is left. The block loads represent 87 to 68 percent of the total industrial load. More importantly, notice that the remaining industrial load, although it grows steadily during the early and mid-1960's, shows a decline in 1970-73. That is, even with the block loads removed the industrial load shows the same pattern that was indicated in the figure following page 2 of my original report.

Subtracting the block loads from the industrial loads to get an industrial residual is not altogether legitimate. The block loads include some non-industrial users (irrigation on Indian Reservations and Glasgow AB which total 12 MW). These could be the cause of the leveling off or downturn but this is doubtful.

Figure 4 is in startling contrast to earlier data (December 3, 1974) prepared by MPC in rebuttal to the DEIS and which formed the basis for their public comments. That data showed that if Anaconda Company's block loads were removed from the industrial sales, one was left with an "other industrial consumption" which grew at a very rapid rate in 1964-1973 (10.7 percent annual rate of growth).** This "other industrial consumption is shown by the solid line on Figure 5. Instead of a decline in industrial consumption in 1970-73 we see accelerated growth.

The explanation for this divergence between these two measures of "base" industrial consumption lies in changes in block load sales to other than the Anaconda Company. These non-Anaconda block loads are shown by the broken line on Figure 5. Notice that 1963-1971 there is little change in these block loads (although their declines

---

* The MPC reports to the FPC give kilowatt-hours sold to ultimate consumers broken down by industrial, commercial and residential users. The data MPC submitted to Energy Planning is in terms of "total energy load experienced" in megawatts. Comparing the two sets of data one finds that the former is 80-84 percent of the latter. This difference is explained by line losses and the difference between "sales to ultimate consumers" and "load experienced" as a result of sales for resale. In Figure 4 the difference is ignored and the block load figures in "load experienced" form are subtracted from the industrial load figures in "sales to ultimate consumer" form.

** This "other industrial consumption" includes irrigation sales to Indian Reservations. If this is subtracted out, the growth rate is similar, but slightly higher.

slow the rate of growth of non-Anaconda industrial consumption. Between 1971-73 these blocks rise rapidly, causing the accelerated growth in non-Anaconda industrial consumption.

But to use this as the "industrial base" consumption violates the method proposed by MPC and outlined above because this "industrial base" consumption still contains other block loads. What this method does is subtract out the declining block loads and leave in the growing block loads even though (as Figure 1 indicates) the total block load was decreasing 1970-73. What MPC is doing in this approach is just what was warned against above - exaggerating growth rates (changing a declining consumption into a rapidly growing consumption) by subtracting out selectively the slower growing (or declining) consumption.

d) The fact is that one ought not to be projecting industrial loads at all in Montana. Montana has so little industry that any industrial development is a major, discontinuous, lump-sum event. The "law of large numbers" that allows one to aggregate residential and commercial users and project the trends cannot be used in projecting industrial demand.

The danger implicit in such projections based on past changes in industrial consumption can be seen from a couple of examples. One of the few bright spots in the Montana economy 1967-1973 was the wood products industry in western Montana.* It added over 500 jobs 1967-73 and increased the dollar value of output by over 50% (1967-72).

Similarly, another major user of electric energy in western Montana, Hoerner-Waldorf, the paperboard mill outside of Missoula, has grown steadily since 1957 (a capacity of 250 tons to 1150 tons in 1966). In 1973 they announced plans for expansion to 1850 tons of capacity.

---

* See "Economic Report to the Governor," December, 1974, pp. 10, 14. Also "The Montana Economy," Montana Business Quarterly, Winter, 1974, p. 13.

If we were to project these rates of industrial expansions in western Montana into the future, they would indicate a rapidly growing demand for electric energy requiring considerable additional generating capacity. But this would ignore the resource base upon which these industries depend. Unless that resource base is currently extremely under utilized, one cannot project exponentially increasing exploitation of it.

The US Forst Service's Intermountain Forest & Range Experiment Station in Ogden, Utah, has recently released a sobering study indicating that present levels of timber harvest in the Rocky Mountain National Forests cannot be sustained over the next several decades.* Given this no-growth projection about the ability of the resource base to provide raw materials one must be very careful about projecting exponential expansion of industries dependent on those raw materials. To the extent that the growth takes place in industries using currently unused waste materials (particle board, paper, fiber board) growth is possible within the limits of the supply of waste products. But these waste products may be coming from industries that cannot expand. Also growth is possible in industries which process the lumber into finished or semi-finished products. The point is that exponential projections of industrial consumption are conceptually and statistically questionable. That is why in my earlier study, in the DEIS, and in some of MPC's latest projections, most industrial consumption is treated as lump-sum, one-of-kind, block increases.

e) Projections into the future should not be based solely upon past consumption patterns. Any knowledge about changes or expected changes in demographic, economic or consumption patterns should be used to temper one's projections. My previous study cited the expected impact of rising real costs of electric energy, slower economic growth and very slow growing (or declining) population as reasons to expect future

---

* A. W. Green & T. S. Setzer, Rocky Mountain Timber Situation, 1970.

expansion of consumption to be less than that in the past. The discussion and evidence will not be repeated here except to point to the December 1974 Economic Report to the Governor prepared by the Bureau of Business & Economic Research and the Department of Agricultural Economics. This report paints a gloomy picture for the Montana economy except for coal development in eastern Montana. It sees limited growth potential in western Montana's wood products industry and fears that the retail and services sectors (source of the commercial demand for electric energy) are overextended (p. 22-23) and may show only very slow growth in the future. Similarly, with the passing of the "baby boom" government demand (especially schools, the expansion of which dominated government activity in the 1960's) can be expected to grow much less slowly.

f) One indication of the need for caution in making projections based on past consumption comes from changes in consumption patterns that can be observed elsewhere in the nation.

The Energy Users Report* during 1974 and early 1975 regularly reported declining growth in electric energy consumption and downward revisions in projected future growth consumption.

The Federal Power Commission's Natural Power Survey warned that electric utilities may be overestimating demand growth and future capacity requirements. They project total need by 1980 to be one-third less than anticipated. (EUR, #58, p. G-2). Total sales of electric energy to ultimate consumers from all sources fell by 1.8 percent between September, 1973, and September, 1974. In the west, north, central and middle Atlantic states the decrease was more than 5 percent. Residential use declined the most; industrial use actually rose 2 percent. (EUR, #75, p. G-2) The FPC News (December 24, 1974, Item No. 20969) provides detailed data indicating

---

* Published by the Bureau of National Affairs, Washington, DC.

that this decline was not just due to the character of consumption on the two end point months (i.e., September, 1974, and September, 1973). The data on the twelve months ending September, 1974, when compared to the twelve months ending September, 1973, show almost no growth (0.7 percent) in total sales of electric energy. The following regions showed declines in sales between September, 1973, and September, 1974: New England, Middle Atlantic, East North Central, West North Central, South Atlantic and West North Central. Only the deep south and the western states showed increases (6.2 percent in the Mountain States and 1.5 percent in the contiguous Pacific States). TVA announced that the average annual household use of electric energy was at a two year low. (EUR, #70, p. G-2). The Federal Power Commission's projections for peak winter loads this year (1974-75) were reduced from a 7.25 percent increase to a 2.7 percent increase (EUR #67, p. G-3).

General Public Utilities Company, serving Pennsylvania and New Jersey, announced that they were lowering their projected annual growth rate from 8 percent to 4.5 percent and hoped to be able to hold it at 4 percent.

Pacific Power & Light (a member of the Colstrip 3 & 4 Consortium) announced December 24, 1974, that the construction schedule for the Jim Bridger electric generating facilities in Wyoming was being set back a year because "Actual leads experienced in the Pacific Northwest and Idaho do not parallel our load forecasts." (PP & L Vice President, Casper Star Tribune, December 24, 1974). Crude data (not adjusted for temperature) covering the last six months of 1974 indicate that average energy consumption in service districts included in the Northwest Power Pool was running 7 to 12.5 percent below the "operating program forecast." (Data submitted to Energy Planning on January 15, 1975; the Northwest Power Pool points out that "omitting adjustments for temperature and industrial interruptible loads magnifies the apparent gap between total forecasts and actual energy load"). The Northwest Power Pool reduced their projected annual rate of growth of consumption slightly from 6.2 percent to 5.9

percent between January, 1974, and January, 1975. Further revision of the forecasts are underway.

The above evidence on declining consumption could be repeated for almost any sector of the country. Although this is a warning, writing on the wall so to speak, it is quite possible that Montana will not immediately follow those trends. As pointed out above, industrial use dominates Montana's consumption patterns and, although very cheap energy could attract users, industrial development in Montana is a discrete, irregular and unstable process which is not primarily controlled by local demographic or economic conditions. Also, the level of saturation of markets for electric energy is not as high in Montana as elsewhere. So there is still room for significant expansion before reaching national norms. However, the same economic, demographic and environmental forces operating on the rest of the nation are operating on Montana too and will in the end reduce the rate of growth of consumption of electric energy.

4. MISCELLANEOUS COMMENTS

a) In my previous study and in this study, I have only dealt with actual and projected consumption of electricity. These projections assume that the relative price of electric energy will not change and that all the electrical energy which individuals, government agencies and businesses wish to use up at that constant relative price, they will be allowed to use up. That is to say, my studies have not dealt with the demand for electric energy (i.e., how much would be consumed at different relative prices) nor the need for electric energy. Most meanings of the word "need" do not coincide with "whatever people want at a low price."

The reason for raising this point is that there are alternative ways of dealing with rising consumption levels of an energy resource, the production of which has serious social and environmental costs. One is to build the generating facilities. Conservation of electric energy so that less is wasted and more "wants" can be satisfied from a given amount of electric energy is clearly another. Public regulatory agencies should weigh all alternatives.

b) It should be pointed out to the Public Service Commission that one of the justifications for charging low rates to block users of electric energy is that that load is stable and dependable. Figure 1 showed that in Montana this is definitely not the case. The block loads fluctuate much more widely than residential or commercial use. MPC recognizes this fact and has argued that because of this fluctuation, their operation is more risk than most public utilities and that, therefore, they should be allowed a higher rate of return on investment than other electric utilities in the nation.* The low rates, combined with the unstable demand, means that large industrial users are not paying the full cost of the electric energy they receive. Very expensive electric generating equipment needed only to provide energy to the large industrial users often stands idle for long periods of time. MPC can ask for rates which will guarantee a "fair rate of return" on their investment in this irregularly used plant and equipment. Such rates fall on other industrial, commercial and residential users who pay for the unused or irregularly used capacity. The large users continue to pay the lowest rates for whatever energy they use.

c) It should be noted that this study and my previous one focussed upon average energy consumption, not peak consumption. The reason for that focus was that the studies aimed at examining the underlying trends in consumption. The "peak load problem" is a complex issue which cannot be discussed here in any detail. However, MPC's implicit suggestion that the only way to deal with this problem is to build permanent capacity which can provide peak load and then sit idle the rest of the year is a gross over simplification. A whole range of alternatives to this problem have been outlined in the BPA's "Impact Study: BPA Proposed Rate Increase" (November, 1973). One is to treat large industrial users as truely interruptible users who will be interrupted during peak winter use. These users would be using the system's reserve

---

* Testimony of J. E. Corette, Chairman of the Board & Chief Executive Officer, MPC, before the Public Service Commission of Montana, 1972 rate increase hearings, Docket No. 6100, pp. 25-26.

capacity when it was not needed elsewhere and would surrender use of it during peak demand. The payments they make would help pay for what would otherwise be unused capacity.

Likewise, one could charge peak users the real cost of that peak demand, i.e., the cost of maintaining unused capacity all year round to meet that peak. The additional use that causes the peak would be serviced only at very high rates. This would drastically discourage peak consumption.

These are just two alternatives to simply building capacity to meet projected peak demands.

d) As the first section of my previous study indicated, no one, including MPC, claims Colstrip 3 & 4 are needed for Montana. A smaller facility (350-420 MW) could, according to MPC's 1974 "Long Range Plan", fill Montana's need. Such a smaller plant might, however, produce electric energy at a higher cost per unit and, therefore, cause Montanan's to pay higher electric rates. This is something the Public Service Commission has some responsibility to be concerned about. The question of "economics to scale" in electric generation and transmission is beyond the scope of this brief study, but the following points can be made: i) If MPC added a third 300-350 MW plant to the Colstrip 1 & 2 complex, it could share operation and maintenance equipment and personnel. In that situation the additional costs per unit of energy generated due to the smaller size of the facility compared with Colstrip 3 & 4 would not be greater than 10 percent and might be much less.*

ii) Although there are not substantial economies of scale in electric generation (given the complex already under construction), there are potential savings in transmission. If MPC now builds a low KV transmission line only to handle a reduced Colstrip 3 and then the demand in the future (beyond 1985) requires additional generati

---

* See part IV, 1970 Natural Power Survey, FPC, Chapter 1.

capacity which [illegible]

demand. The [illegible]

capacity [illegible]

Likewise, [illegible]

the cost of maintaining [illegible]

use that causes [illegible]

drastically [illegible]

These are [illegible]

peak demands [illegible]

d) A [illegible]

NPC, utilities [illegible]

could, [illegible]

smaller plants [illegible]

therefore [illegible]

Public Service [illegible]

question of [illegible]

the scope of this [illegible]

a third 300 [illegible]

maintenance [illegible]

unit of energy [illegible]

$ a watts [illegible]

B) A [illegible]

tion (given [illegible]

in transmission [illegible]

Colstrip [illegible]

* See page [illegible]